

CellMLAPISpec Reference Manual

Generated by Doxygen 1.3.5

Wed Dec 22 17:27:32 2004

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Chapter 1

CellMLAPISpec Namespace Index

1.1 CellMLAPISpec Namespace List

Here is a list of all documented namespaces with brief descriptions:

cellml_dom		7
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Chapter 2

CellMLAPISpec Hierarchical Index

2.1 CellMLAPISpec Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

cellml_dom::CellMLAppData	9
cellml_dom::CellMLDocument	23
cellml_dom::CellMLDocumentPromise	24
cellml_dom::CellMLDOMImplementation	27
cellml_dom::CellMLElement	28
cellml_dom::CellMLComponent	12
cellml_dom::CellMLComponentRef	16
cellml_dom::CellMLConnection	19
cellml_dom::CellMLGroup	30
cellml_dom::CellMLImport	33
cellml_dom::CellMLImportedComponent	34
cellml_dom::CellMLImportedUnits	37
cellml_dom::CellMLModel	42
cellml_dom::CellMLUnit	46
cellml_dom::CellMLUnits	50
cellml_dom::CellMLVariable	53
cellml_dom::CellMLModelLoader	44
cellml_dom::CellMLNodeList	45
cellml_dom::CellMLApplyList	10
cellml_dom::CellMLComponentList	14
cellml_dom::CellMLComponentRefList	17
cellml_dom::CellMLConnectionList	21
cellml_dom::CellMLGroupList	31
cellml_dom::CellMLImportedComponentsList	35
cellml_dom::CellMLImportedUnitsList	38
cellml_dom::CellMLImportList	40
cellml_dom::CellMLUnitList	48
cellml_dom::CellMLUnitsList	51
cellml_dom::CellMLVariableList	56
cellml_dom::CellMLVariableRefList	59
cellml_dom::CellMLVariableRef	58

Chapter 3

CellMLAPISpec Class Index

3.1 CellMLAPISpec Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

cellml _ dom::CellMLAppData	9
cellml _ dom::CellMLApplyList	10
cellml _ dom::CellMLComponent	12
cellml _ dom::CellMLComponentList	14
cellml _ dom::CellMLComponentRef	16
cellml _ dom::CellMLComponentRefList	17
cellml _ dom::CellMLConnection	19
cellml _ dom::CellMLConnectionList	21
cellml _ dom::CellMLDocument	23
cellml _ dom::CellMLDocumentPromise	24
cellml _ dom::CellMLDOMImplementation	27
cellml _ dom::CellMLElement	28
cellml _ dom::CellMLGroup	30
cellml _ dom::CellMLGroupList	31
cellml _ dom::CellMLImport	33
cellml _ dom::CellMLImportedComponent	34
cellml _ dom::CellMLImportedComponentsList	35
cellml _ dom::CellMLImportedUnits	37
cellml _ dom::CellMLImportedUnitsList	38
cellml _ dom::CellMLImportList	40
cellml _ dom::CellMLModel	42
cellml _ dom::CellMLModelLoader	44
cellml _ dom::CellMLNodeList	45
cellml _ dom::CellMLUnit	46
cellml _ dom::CellMLUnitList	48
cellml _ dom::CellMLUnits	50
cellml _ dom::CellMLUnitsList	51
cellml _ dom::CellMLVariable	53
cellml _ dom::CellMLVariableList	56
cellml _ dom::CellMLVariableRef	58
cellml _ dom::CellMLVariableRefList	59

Chapter 4

CellMLAPISpec Namespace Documentation

4.1 cellml_dom Namespace Reference

Classes

- interface **CellMLAppData**
- interface **CellMLApplyList**
- interface **CellMLComponent**
- interface **CellMLComponentList**
- interface **CellMLComponentRef**
- interface **CellMLComponentRefList**
- interface **CellMLConnection**
- interface **CellMLConnectionList**
- interface **CellMLDocument**
- interface **CellMLDocumentPromise**
- interface **CellMLDOMImplementation**
- interface **CellMLElement**
- interface **CellMLGroup**
- interface **CellMLGroupList**
- interface **CellMLImport**
- interface **CellMLImportedComponent**
- interface **CellMLImportedComponentsList**
- interface **CellMLImportedUnits**
- interface **CellMLImportedUnitsList**
- interface **CellMLImportList**
- interface **CellMLModel**
- interface **CellMLModelLoader**
- interface **CellMLNodeList**
- interface **CellMLUnit**
- interface **CellMLUnitList**
- interface **CellMLUnits**
- interface **CellMLUnitsList**
- interface **CellMLVariable**

- interface **CellMLVariableList**
- interface **CellMLVariableRef**
- interface **CellMLVariableRefList**

4.1.1 Detailed Description

This document is a working draft of the CellML Document Object Model specification. This DOM specification is used to define how CellML API implementations and CellML applications will interact.

Id

CellML-DOM.idl,v 1.3 2004/12/21 01:19:58 amil082 Exp

Chapter 5

CellMLAPISpec Class Documentation

5.1 cellml_dom::CellMLAppData Interface Reference

```
import "CellML-DOM.idl";
```

5.1.1 Detailed Description

This is implemented by applications using this API. It is assumed that the platform provides a way to refcount it, or provides automatic memory management. On platforms where this does not happen, ownership of the **CellMLAppData**(p.9) passes to the CellML API.

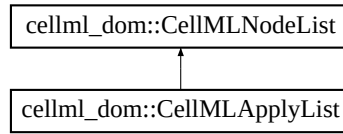
The documentation for this interface was generated from the following file:

- CellML-DOM.idl

5.2 cellml_dom::CellMLApplyList Interface Reference

```
import "CellML-DOM.idl";
```

Inheritance diagram for cellml_dom::CellMLApplyList::



Public Member Functions

- mathml_dom::MathMLApplyElement **getApply** (in unsigned long index)
- void **insertApply** (in unsigned long index, in mathml_dom::MathMLApplyElement el)
- mathml_dom::MathMLApplyElement **setApply** (in unsigned long index, in mathml_dom::MathMLApplyElement el)
- void **deleteApply** (in unsigned long index)
- mathml_dom::MathMLApplyElement **removeApply** (in unsigned long index)

Public Attributes

- readonly attribute unsigned long **nApply**

5.2.1 Detailed Description

This represents a list of apply elements.

5.2.2 Member Function Documentation

5.2.2.1 void cellml_dom::CellMLApplyList::deleteApply (in unsigned long *index*)

Delete an element

Parameters:

index The index at which to delete.

5.2.2.2 mathml_dom::MathMLApplyElement cellml_dom::CellMLApplyList::getApply (in unsigned long *index*)

Obtain an apply element

Parameters:

index The index of the apply element.

Returns:

The apply element

5.2.2.3 void cellml_dom::CellMLApplyList::insertApply (in unsigned long *index*, in mathml_dom::MathMLApplyElement *el*)

Insert an element

Parameters:

index The index which the inserted element will have.

el The element to insert

5.2.2.4 mathml_dom::MathMLApplyElement cellml_dom::CellMLApplyList::removeApply (in unsigned long *index*)

Remove an element, and return it.

Parameters:

index The index at which to remove.

Returns:

The removed element.

5.2.2.5 mathml_dom::MathMLApplyElement cellml_dom::CellMLApplyList::setApply (in unsigned long *index*, in mathml_dom::MathMLApplyElement *el*)

Set an element

Parameters:

index The index at which to set

el The element to set to.

Returns:

The previous value at that index

5.2.3 Member Data Documentation

5.2.3.1 readonly attribute unsigned long cellml_dom::CellMLApplyList::nApply

The number of apply elements.

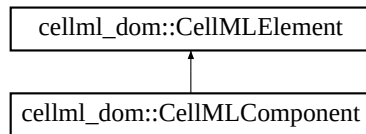
The documentation for this interface was generated from the following file:

- CellML-DOM.idl

5.3 cellml_dom::CellMLComponent Interface Reference

```
import "CellML-DOM.idl";
```

Inheritance diagram for cellml_dom::CellMLComponent::



Public Member Functions

- **CellMLVariable** findVariable (in dom::DOMString name)

Public Attributes

- readonly attribute **CellMLUnitsList** units
- readonly attribute **CellMLVariableList** variables
- readonly attribute **CellMLApplyList** maths

5.3.1 Detailed Description

This represents a CellML <component> element inside a model.

5.3.2 Member Function Documentation

5.3.2.1 CellMLVariable cellml_dom::CellMLComponent::findVariable (in dom::DOMString *name*)

This method allows a variable to be found by name.

Exceptions:

failure if not found.

5.3.3 Member Data Documentation

5.3.3.1 readonly attribute CellMLApplyList cellml_dom::CellMLComponent::maths

The list of toplevel math apply elements in this component.

5.3.3.2 readonly attribute CellMLUnitsList cellml_dom::CellMLComponent::units

The list of units defined in this component.

5.3.3.3 readonly attribute CellMLVariableList cellml_dom::CellMLComponent::variables

The list of variables in this component.

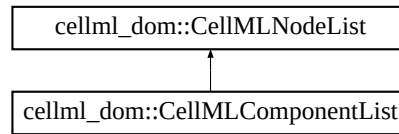
The documentation for this interface was generated from the following file:

- CellML-DOM.idl

5.4 cellml_dom::CellMLComponentList Interface Reference

```
import "CellML-DOM.idl";
```

Inheritance diagram for cellml_dom::CellMLComponentList::



Public Member Functions

- **CellMLComponent** **getComponent** (in unsigned long index)
- void **insertComponent** (in unsigned long index, in **CellMLComponent** el)
- **CellMLComponent** **setComponent** (in unsigned long index, in **CellMLGroup** el)
- void **deleteComponent** (in unsigned long index)
- **CellMLComponent** **removeComponent** (in unsigned long index)

Public Attributes

- readonly attribute unsigned long **nComponents**

5.4.1 Detailed Description

This represents a list of <component> elements inside <model>

5.4.2 Member Function Documentation

5.4.2.1 void cellml_dom::CellMLComponentList::deleteComponent (in unsigned long *index*)

Delete an element

Parameters:

index The index at which to delete.

5.4.2.2 CellMLComponent cellml_dom::CellMLComponentList::getComponent (in unsigned long *index*)

Get a component element

Parameters:

index The index of the component element

Returns:

The component element

5.4.2.3 void cellml_dom::CellMLComponentList::insertComponent (in unsigned long *index*, in CellMLComponent *el*)

Insert an element

Parameters:

- index* The index which the inserted element will have.
el The element to insert

5.4.2.4 CellMLComponent cellml_dom::CellMLComponentList::removeComponent (in unsigned long *index*)

Remove an element, and return it.

Parameters:

- index* The index at which to remove.

Returns:

- The removed element.

5.4.2.5 CellMLComponent cellml_dom::CellMLComponentList::setComponent (in unsigned long *index*, in CellMLGroup *el*)

Set an element

Parameters:

- index* The index at which to set.
el The element to set to.

Returns:

- The previous value at that index

5.4.3 Member Data Documentation

5.4.3.1 readonly attribute unsigned long cellml_dom::CellMLComponentList::nComponents

The number of component elements.

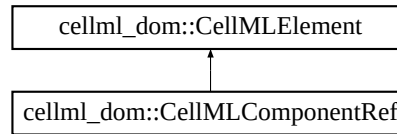
The documentation for this interface was generated from the following file:

- CellML-DOM.idl

5.5 cellml_dom::CellMLComponentRef Interface Reference

```
import "CellML-DOM.idl";
```

Inheritance diagram for cellml_dom::CellMLComponentRef::



Public Attributes

- attribute dom::DOMString **componentName**
- attribute **CellMLComponent** **component**
- readonly attribute **CellMLComponentRefList** **childRelationships**

5.5.1 Detailed Description

This represents a <component_ref> element

5.5.2 Member Data Documentation

5.5.2.1 readonly attribute CellMLComponentRefList cellml_dom::CellMLComponentRef::childRelationships

The list of component references which are nested immediately inside this one.

5.5.2.2 attribute CellMLComponent cellml_dom::CellMLComponentRef::component

Getting this will find the component(null if it is in an import and this is not from a flattened document). Setting this will also set componentName. It is also legal to set this to a component from another document, in which case the import elements will automatically be managed using **CellMLDocument::sourceURL**(p. 23)

5.5.2.3 attribute dom::DOMString cellml_dom::CellMLComponentRef::componentName

The name of the component referenced.

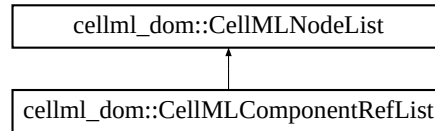
The documentation for this interface was generated from the following file:

- CellML-DOM.idl

5.6 cellml_dom::CellMLComponentRefList Interface Reference

```
import "CellML-DOM.idl";
```

Inheritance diagram for cellml_dom::CellMLComponentRefList::



Public Member Functions

- **CellMLComponentRef** **GetComponentRef** (in unsigned long index)
- void **insertComponentRef** (in unsigned long index, in **CellMLComponentRef** el)
- **CellMLComponentRef** **setComponentRef** (in unsigned long index, in **CellMLComponentRef** el)
- void **deleteComponentRef** (in unsigned long index)
- **CellMLComponentRef** **removeComponentRef** (in unsigned long index)

Public Attributes

- readonly attribute unsigned long **nComponentRefs**

5.6.1 Detailed Description

This represents a list of <component_ref> elements.

5.6.2 Member Function Documentation

5.6.2.1 void cellml_dom::CellMLComponentRefList::deleteComponentRef (in unsigned long *index*)

Delete an element

Parameters:

index The index at which to delete.

5.6.2.2 CellMLComponentRef cellml_dom::CellMLComponentRefList::GetComponentRef (in unsigned long *index*)

Get a component_ref element

Parameters:

index The index of the component_ref element

Returns:

The component_ref element

5.6.2.3 void cellml_dom::CellMLComponentRefList::insertComponentRef (in unsigned long *index*, in CellMLComponentRef *el*)

Insert an element

Parameters:

- index* The index which the inserted element will have.
- el* The element to insert

5.6.2.4 CellMLComponentRef cellml_dom::CellMLComponentRefList::removeComponentRef (in unsigned long *index*)

Remove an element, and return it.

Parameters:

- index* The index at which to remove.

Returns:

- The removed element.

5.6.2.5 CellMLComponentRef cellml_dom::CellMLComponentRefList::setComponentRef (in unsigned long *index*, in CellMLComponentRef *el*)

Set an element

Parameters:

- index* The index at which to set.
- el* The element to set to.

Returns:

- The previous value at that index

5.6.3 Member Data Documentation

5.6.3.1 readonly attribute unsigned long cellml_dom::CellMLComponentRefList::nComponentRefs

The number of component_ref elements.

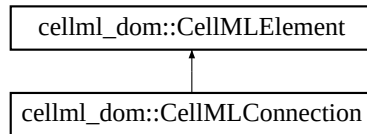
The documentation for this interface was generated from the following file:

- CellML-DOM.idl

5.7 cellml_dom::CellMLConnection Interface Reference

```
import "CellML-DOM.idl";
```

Inheritance diagram for cellml_dom::CellMLConnection::



Public Attributes

- attribute dom::DOMString **componentOneName**
- attribute dom::DOMString **componentTwoName**
- attribute **CellMLComponent** **componentOne**
- attribute **CellMLComponent** **componentTwo**
- readonly attribute **CellMLVariableRefList** **connections**

5.7.1 Detailed Description

This represents a <connection> element

5.7.2 Member Data Documentation

5.7.2.1 attribute CellMLComponent cellml_dom::CellMLConnection::componentOne

Getting these will find the component(null if it is in an import and this is not from a flattened document). Setting these will also set component*Name. It is also legal to set these to a component from another document, in which case the import elements will automatically be managed using **CellMLDocument::sourceURL**(p. 23)

5.7.2.2 attribute dom::DOMString cellml_dom::CellMLConnection::componentOneName

The names of the two components according to the attributes component_one and component_two

5.7.2.3 attribute CellMLComponent cellml_dom::CellMLConnection::componentTwo

Getting these will find the component(null if it is in an import and this is not from a flattened document). Setting these will also set component*Name. It is also legal to set these to a component from another document, in which case the import elements will automatically be managed using **CellMLDocument::sourceURL**(p. 23)

5.7.2.4 attribute dom::DOMString cellml_dom::CellMLConnection::component-TwoName

The names of the two components according to the attributes component_one and component_two

5.7.2.5 readonly attribute CellMLVariableRefList cellml_dom::CellMLConnection::connections

A list of all variable_ref elements inside this one.

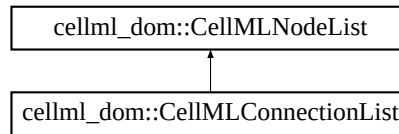
The documentation for this interface was generated from the following file:

- CellML-DOM.idl

5.8 cellml_dom::CellMLConnectionList Interface Reference

```
import "CellML-DOM.idl";
```

Inheritance diagram for cellml_dom::CellMLConnectionList::



Public Member Functions

- **CellMLConnection getConnection** (in unsigned long index)
- void **insertConnection** (in unsigned long index, in **CellMLConnection** el)
- **CellMLConnection setConnection** (in unsigned long index, in **CellMLConnection** el)
- void **deleteConnection** (in unsigned long index)
- **CellMLConnection removeConnection** (in unsigned long index)

Public Attributes

- readonly attribute unsigned long **nConnections**

5.8.1 Detailed Description

This represents a list of <connection> elements.

5.8.2 Member Function Documentation

5.8.2.1 void cellml_dom::CellMLConnectionList::deleteConnection (in unsigned long *index*)

Delete an element

Parameters:

index The index at which to delete.

5.8.2.2 CellMLConnection cellml_dom::CellMLConnectionList::getConnection (in unsigned long *index*)

Get a connection element

Parameters:

index The index of the connection element

Returns:

The connection element

5.8.2.3 void cellml_dom::CellMLConnectionList::insertConnection (in unsigned long *index*, in CellMLConnection *el*)

Insert an element

Parameters:

- index* The index which the inserted element will have.
- el* The element to insert

5.8.2.4 CellMLConnection cellml_dom::CellMLConnectionList::removeConnection (in unsigned long *index*)

Remove an element, and return it.

Parameters:

- index* The index at which to remove.

Returns:

- The removed element.

5.8.2.5 CellMLConnection cellml_dom::CellMLConnectionList::setConnection (in unsigned long *index*, in CellMLConnection *el*)

Set an element

Parameters:

- index* The index at which to set.
- el* The element to set to.

Returns:

- The previous value at that index

5.8.3 Member Data Documentation

5.8.3.1 readonly attribute unsigned long cellml_dom::CellMLConnectionList::n-Connections

The number of connection elements.

The documentation for this interface was generated from the following file:

- CellML-DOM.idl

5.9 cellml_dom::CellMLDocument Interface Reference

```
import "CellML-DOM.idl";
```

Public Member Functions

- **CellMLDocumentPromise createFlatModelPromise** (in **CellMLModelLoader** loader)
- **CellMLComponent findComponent** (in dom::DOMString name)

Public Attributes

- attribute dom::DOMString **sourceURL**

5.9.1 Detailed Description

This represents a CellML document.

5.9.2 Member Function Documentation

5.9.2.1 CellMLDocumentPromise cellml_dom::CellMLDocument::createFlatModelPromise (in CellMLModelLoader *loader*)

Creates model promise which can be used to obtain an identical model, except with all imports resolved. Ownership of the **CellMLDocumentPromise**(p. 24) stays with the **CellMLDocument**(p. 23). The object should not be used after the document is destroyed, or createFlatModelPromise has been called a second time.

5.9.2.2 CellMLComponent cellml_dom::CellMLDocument::findComponent (in dom::DOMString *name*)

This method allows a component to be found by name.

Exceptions:

failure if not found.

5.9.3 Member Data Documentation

5.9.3.1 attribute dom::DOMString cellml_dom::CellMLDocument::sourceURL

This may be set by the application, or when a DOM element is imported. It is used to automatically manage import elements. Modifying it does not automatically change documents in memory which import this document.

The documentation for this interface was generated from the following file:

- CellML-DOM.idl

5.10 cellml_dom::CellMLDocumentPromise Interface Reference

```
import "CellML-DOM.idl";
```

Public Member Functions

- void **addDocument** (in dom::DOMString href, in **CellMLDocument** doc)

Public Attributes

- readonly attribute boolean **isReady**
- readonly attribute **CellMLDocument** **flatDocument**

5.10.1 Detailed Description

This object is a temporary object while imports are loaded used to obtain a flat object with no imports.

5.10.2 Member Function Documentation

5.10.2.1 void cellml_dom::CellMLDocumentPromise::addDocument (in dom::DOMString *href*, in **CellMLDocument** *doc*)

Called to indicate a requested pre-requisite document has been loaded.

Parameters:

- href* The URL from which the document was fetched(as passed to the model loader).
- doc* The **CellMLDocument**(p. 23) that has been loaded.

5.10.3 Member Data Documentation

5.10.3.1 readonly attribute CellMLDocument cellml_dom::CellMLDocumentPromise::flatDocument

The **CellMLDocument**(p. 23) with all imports folded into the main model. This is only available after all imports have been loaded.

The current model is the CellML DOM used to create this **CellMLDocumentPromise**(p. 24).

The imported component set consists of 1) all components in the current model, and 2) all components(either in the same model or in another model) encapsulated by all members of the imported component set.

The imported units set consists of 1) all units which are directly imported by the current model, and 2) all units which are used by a member of the imported set, and a) are direct children of an import element, or b) are direct children of a component element

The name resolution rules are as follows... 1) The set of all components which would otherwise have the same name is called the conflicting set. 2) The change set consists of all components which are a) in the conflicting set, and b) are present due to a chain of imports at least as long

as every other component in the conflicting set. 3) Every component in the change set shall be prefixed with the value of the name attribute of the underlying model, followed by an underscore. 4) Where rule 3 fails to produce a unique name, an integer is appended as follows: a) if the name ends in a non-numeric character, the initial integer is set to 1. b) if the name ends in a numeric character, the initial integer is parsed from the contiguous numeric characters at the end of the name, and is then incremented by 1. c) the initial integer is appended to the name from rule 3, and rule c is repeated until a unique name is produced. 5) When two components have the same name after rule 3, the order in which the numbers are assigned is undefined.

The import change rules are as follows... 1) The element in an import element in the current model, which caused the presence of the object being changed in the flattened document object model, is removed from the current model. 2) If the application of rule 1 causes an import element with no child component or units elements to be produced, the import element is also removed. 3) The following nodes in the flat DOM are added to the current model a) the node being changed, and all child nodes which correspond to a node in the same original DOM, and b) all ancestors of the nodes in a) above, except those which are descendants of any node in the current model. 4) Despite rule 3, where the same model is imported more than once in flat DOM, only nodes which are present by virtue of the same import node shall be added. 5) After the current model is updated, the properties for flattened document objects must still hold.

flatDocument must conform to the following properties for flattened document objects.

Properties for flattened document objects: 1) All methods and attributes on the flat document object (including those from the DOM core) must behave as if there was only one model containing: a) all nodes present in the current document, and b) all component elements in the imported component set, and any descendant nodes of such elements. c) all units elements in the imported units set, and any descendant nodes of such elements. 2) Despite property 1, the name attribute of a component element which is in the imported component set by virtue of a component element in an import element, shall behave as if its value was the same as the name attribute in the component element in the import element. All other attributes and methods on the flat document object shall behave accordingly. 3) Despite properties 1 and 2, where the application of properties 1 and 2 would cause two or more components to have the same name, the name conflict resolution rules given above shall be used. 4) Despite property 1, the name attribute of a units element which is in the imported units set by virtue of a units element in an import element, shall behave as if its value was the same as the name attribute in the units element in the import element. 5) Despite properties 1 and 4, where the application of properties 1 and 4 would cause two or more units to have the same name, the name conflict resolution rules given above shall be used. 6) Despite property 1, when the application of properties 2-5 on some part of the flattened document model tree would cause the behaviour of a name attribute to change, the behaviour of all other attribute nodes in the flattened document object model which refer to this name attribute shall change to refer to this changed name. All other attributes and methods on the flat document object model shall behave accordingly. 7) Despite property 1, all methods and attributes on the flat document object must behave as if any import elements, and any descendant nodes of such elements, are absent. 8) Any call to a non-const method or setting of an attribute on a flat document object which corresponds to part of the current document shall change the corresponding part of the current document. 9) Any call to a method or setting of an attribute on a flat document object which does not correspond to part of the current document shall cause the invocation of the import change rules defined above. 10) Any change to any document corresponding to part of the flattened document object model shall cause the behaviour of all methods and attributes of the flat document object to correspond to the new value subject to these properties. 11) Despite property 10, the effect of any change which would cause a component or units element from a model to correspond to a flat document object is undefined unless a component or units element from that model already corresponds to part of this flat DOM. 12) All methods and attributes which return any object inheriting from dom::Node must return an object which meets these properties for flattened document objects. 13) The clone method is exempt from property 12.

5.10.3.2 readonly attribute boolean cellml_dom::CellMLDocumentPromise::is-Ready

Determines whether the **CellMLDocument**(p.23) can be fetched yet.

The documentation for this interface was generated from the following file:

- CellML-DOM.idl

5.11 cellml_dom::CellMLDOMImplementation Interface Reference

```
import "CellML-DOM.idl";
```

Public Member Functions

- **CellMLDocument createCellMLDocument ()**

5.11.1 Detailed Description

The DOMImplementation class for the CellML DOM

5.11.2 Member Function Documentation

5.11.2.1 CellMLDocument cellml_dom::CellMLDOMImplementation::createCellMLDocument ()

Create a new CellML document.

Returns:

A new CellML document.

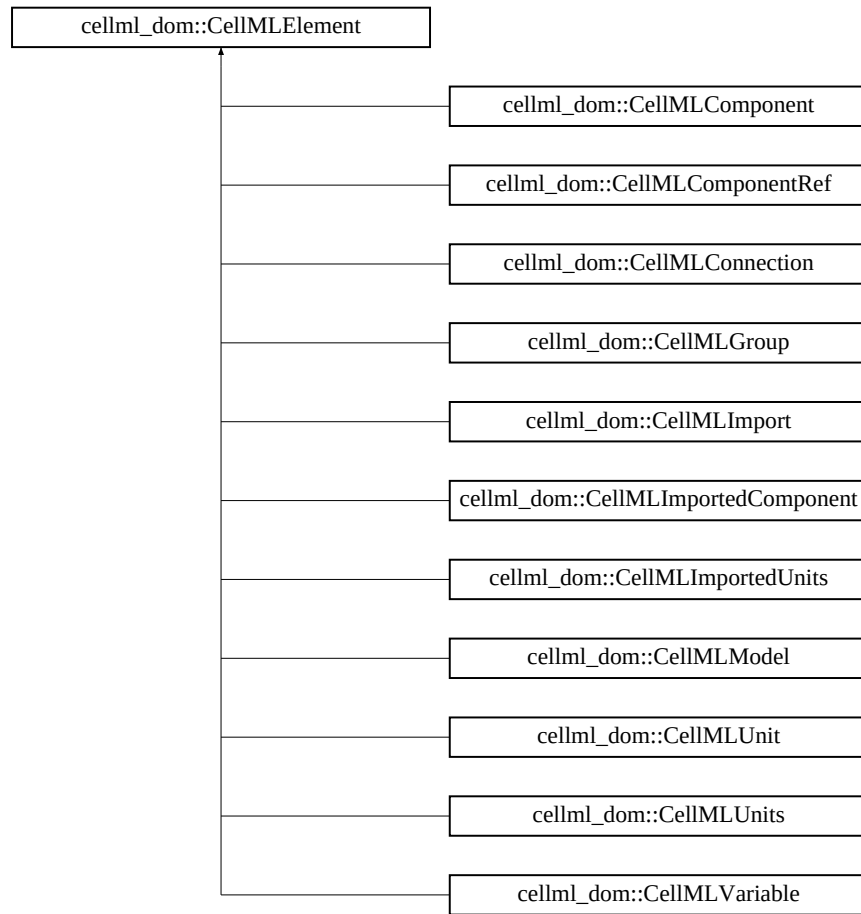
The documentation for this interface was generated from the following file:

- CellML-DOM.idl

5.12 cellml_dom::CellMLElement Interface Reference

```
import "CellML-DOM.idl";
```

Inheritance diagram for cellml_dom::CellMLElement::



Public Member Functions

- void **setParameter** (in dom::DOMString name, in **CellMLAppData** value)
- **CellMLAppData** **getParameter** (in dom::DOMString name)

5.12.1 Detailed Description

This represents an element in the CellML namespace.

5.12.2 Member Function Documentation

5.12.2.1 **CellMLAppData** cellml_dom::CellMLElement::getParameter (in dom::DOMString *name*)

Fetches a parameter value back.

5.12.2.2 void cellml_dom::CellMLElement::setParameter (in dom::DOMString *name*, in CellMLAppData *value*)

Sets a parameter(application private data that does not get written out if the document is serialised).

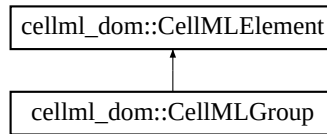
The documentation for this interface was generated from the following file:

- CellML-DOM.idl

5.13 cellml_dom::CellMLGroup Interface Reference

```
import "CellML-DOM.idl";
```

Inheritance diagram for cellml_dom::CellMLGroup::



Public Attributes

- attribute boolean **containment**
- attribute boolean **encapsulation**
- readonly attribute **CellMLComponentRefList** **topLevelRelationships**

5.13.1 Detailed Description

This represents a <group> element

5.13.2 Member Data Documentation

5.13.2.1 attribute boolean cellml_dom::CellMLGroup::containment

Set to true if this group describes the containment of the model, or false otherwise.

5.13.2.2 attribute boolean cellml_dom::CellMLGroup::encapsulation

Set to true if this group describes the encapsulation of the model, or false otherwise.

5.13.2.3 readonly attribute CellMLComponentRefList cellml_dom::CellMLGroup::topLevelRelationships

A list of all top-level component references in this group.

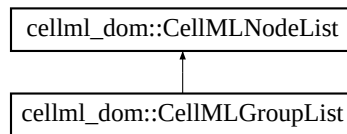
The documentation for this interface was generated from the following file:

- CellML-DOM.idl

5.14 cellml_dom::CellMLGroupList Interface Reference

```
import "CellML-DOM.idl";
```

Inheritance diagram for cellml_dom::CellMLGroupList::



Public Member Functions

- **CellMLGroup** **getGroup** (in unsigned long index)
- void **insertGroup** (in unsigned long index, in **CellMLGroup** el)
- **CellMLGroup** **setGroup** (in unsigned long index, in **CellMLGroup** el)
- void **deleteGroup** (in unsigned long index)
- **CellMLGroup** **removeGroup** (in unsigned long index)

Public Attributes

- readonly attribute unsigned long **nGroups**

5.14.1 Detailed Description

This represents a list <group> elements.

5.14.2 Member Function Documentation

5.14.2.1 void cellml_dom::CellMLGroupList::deleteGroup (in unsigned long *index*)

Delete an element

Parameters:

index The index at which to delete.

5.14.2.2 CellMLGroup cellml_dom::CellMLGroupList::getGroup (in unsigned long *index*)

Get a group element

Parameters:

index The index of the group element

Returns:

The group element

5.14.2.3 void cellml_dom::CellMLGroupList::insertGroup (in unsigned long *index*, in CellMLGroup *el*)

Insert an element

Parameters:

- index* The index which the inserted element will have.
el The element to insert

5.14.2.4 CellMLGroup cellml_dom::CellMLGroupList::removeGroup (in unsigned long *index*)

Remove an element, and return it.

Parameters:

- index* The index at which to remove.

Returns:

- The removed element.

5.14.2.5 CellMLGroup cellml_dom::CellMLGroupList::setGroup (in unsigned long *index*, in CellMLGroup *el*)

Set an element

Parameters:

- index* The index at which to set.
el The element to set to.

Returns:

- The previous value at that index

5.14.3 Member Data Documentation

5.14.3.1 readonly attribute unsigned long cellml_dom::CellMLGroupList::nGroups

The number of group elements.

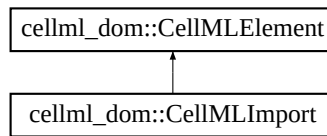
The documentation for this interface was generated from the following file:

- CellML-DOM.idl

5.15 cellml_dom::CellMLImport Interface Reference

```
import "CellML-DOM.idl";
```

Inheritance diagram for cellml_dom::CellMLImport::



Public Attributes

- readonly attribute **CellMLImportedUnitsList** **importedUnits**
- readonly attribute **CellMLImportedComponentsList** **importedComponents**

5.15.1 Detailed Description

This represents a CellML import element.

5.15.2 Member Data Documentation

5.15.2.1 readonly attribute **CellMLImportedComponentsList** **cellml_dom::CellMLImport::importedComponents**

A list of all imported components.

5.15.2.2 readonly attribute **CellMLImportedUnitsList** **cellml_dom::CellMLImport::importedUnits**

A list of all imported units.

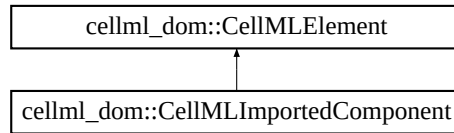
The documentation for this interface was generated from the following file:

- CellML-DOM.idl

5.16 cellml_dom::CellMLImportedComponent Interface Reference

```
import "CellML-DOM.idl";
```

Inheritance diagram for cellml_dom::CellMLImportedComponent::



Public Attributes

- attribute dom::DOMString **name**
- attribute dom::DOMString **reference**

5.16.1 Detailed Description

This represents a <component> node inside an <import>

5.16.2 Member Data Documentation

5.16.2.1 attribute dom::DOMString cellml_dom::CellMLImportedComponent::name

The name of the imported component.

5.16.2.2 attribute dom::DOMString cellml_dom::CellMLImportedComponent::reference

The name of the component referenced in the imported model.

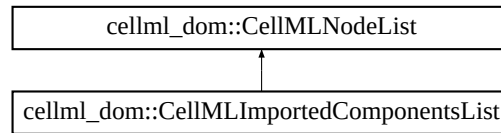
The documentation for this interface was generated from the following file:

- CellML-DOM.idl

5.17 cellml_dom::CellMLImportedComponentsList Interface Reference

```
import "CellML-DOM.idl";
```

Inheritance diagram for cellml_dom::CellMLImportedComponentsList::



Public Member Functions

- **CellMLImportedComponent** **getComponent** (in unsigned long index)
- void **insertComponent** (in unsigned long index, in **CellMLImportedComponent** el)
- **CellMLImportedComponent** **setComponent** (in unsigned long index, in **CellMLImportedComponent** el)
- void **deleteComponent** (in unsigned long index)
- **CellMLImportedComponent** **removeComponent** (in unsigned long index)

Public Attributes

- readonly attribute unsigned long **nComponents**

5.17.1 Detailed Description

This represents a list of <component> elements inside <import>

5.17.2 Member Function Documentation

5.17.2.1 void cellml_dom::CellMLImportedComponentsList::deleteComponent (in unsigned long *index*)

Delete an element

Parameters:

index The index at which to delete.

5.17.2.2 CellMLImportedComponent cellml_dom::CellMLImportedComponentsList::getComponent (in unsigned long *index*)

Get an imported component

Parameters:

index The index of the imported component.

Returns:

The imported component element

5.17.2.3 void cellml_dom::CellMLImportedComponentsList::insertComponent (in unsigned long *index*, in CellMLImportedComponent *el*)

Insert an element

Parameters:

index The index which the inserted element will have.

el The element to insert

5.17.2.4 CellMLImportedComponent cellml_dom::CellMLImportedComponentsList::removeComponent (in unsigned long *index*)

Remove an element, and return it.

Parameters:

index The index at which to remove.

Returns:

The removed element.

5.17.2.5 CellMLImportedComponent cellml_dom::CellMLImportedComponentsList::setComponent (in unsigned long *index*, in CellMLImportedComponent *el*)

Set an element

Parameters:

index The index at which to set

el The element to set to.

Returns:

The previous value at that index

5.17.3 Member Data Documentation

5.17.3.1 readonly attribute unsigned long cellml_dom::CellMLImportedComponentsList::nComponents

The number of components elements.

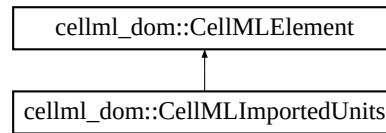
The documentation for this interface was generated from the following file:

- CellML-DOM.idl

5.18 cellml_dom::CellMLImportedUnits Interface Reference

```
import "CellML-DOM.idl";
```

Inheritance diagram for cellml_dom::CellMLImportedUnits::



Public Attributes

- attribute dom::DOMString **name**
- attribute dom::DOMString **reference**

5.18.1 Detailed Description

This represents a <units> element inside an <import>

5.18.2 Member Data Documentation

5.18.2.1 attribute dom::DOMString cellml_dom::CellMLImportedUnits::name

The name of the import unit.

5.18.2.2 attribute dom::DOMString cellml_dom::CellMLImportedUnits::reference

The name of component referenced in the imported model.

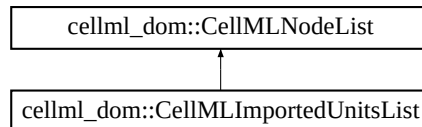
The documentation for this interface was generated from the following file:

- CellML-DOM.idl

5.19 cellml_dom::CellMLImportedUnitsList Interface Reference

```
import "CellML-DOM.idl";
```

Inheritance diagram for cellml_dom::CellMLImportedUnitsList::



Public Member Functions

- **CellMLImportedUnits** **getUnits** (in unsigned long index)
- void **insertUnits** (in unsigned long index, in **CellMLImportedUnits** el)
- **CellMLImportedUnits** **setUnits** (in unsigned long index, in **CellMLImport** el)
- void **deleteUnits** (in unsigned long index)
- **CellMLImportedUnits** **removeUnits** (in unsigned long index)

Public Attributes

- readonly attribute unsigned long **nUnits**

5.19.1 Detailed Description

This represents a list of <units> elements inside <import>

5.19.2 Member Function Documentation

5.19.2.1 void cellml_dom::CellMLImportedUnitsList::deleteUnits (in unsigned long *index*)

Delete an element

Parameters:

index The index at which to delete.

5.19.2.2 CellMLImportedUnits cellml_dom::CellMLImportedUnitsList::getUnits (in unsigned long *index*)

Get an imported unit

Parameters:

index The index of the import unit.

Returns:

The imported units element

5.19.2.3 void cellml_dom::CellMLImportedUnitsList::insertUnits (in unsigned long *index*, in CellMLImportedUnits *el*)

Insert an element

Parameters:

- index* The index which the inserted element will have.
el The element to insert

5.19.2.4 CellMLImportedUnits cellml_dom::CellMLImportedUnitsList::removeUnits (in unsigned long *index*)

Remove an element, and return it.

Parameters:

- index* The index at which to remove.

Returns:

- The removed element.

5.19.2.5 CellMLImportedUnits cellml_dom::CellMLImportedUnitsList::setUnits (in unsigned long *index*, in CellMLImport *el*)

Set an element

Parameters:

- index* The index at which to set
el The element to set to.

Returns:

- The previous value at that index

5.19.3 Member Data Documentation

5.19.3.1 readonly attribute unsigned long cellml_dom::CellMLImportedUnitsList::nUnits

The number of units elements.

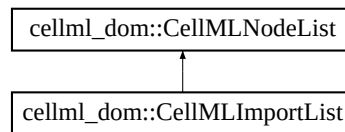
The documentation for this interface was generated from the following file:

- CellML-DOM.idl

5.20 cellml_dom::CellMLImportList Interface Reference

```
import "CellML-DOM.idl";
```

Inheritance diagram for cellml_dom::CellMLImportList::



Public Member Functions

- **CellMLImport** **getImport** (in unsigned long index)
- void **insertImport** (in unsigned long index, in **CellMLImport** el)
- **CellMLImport** **setImport** (in unsigned long index, in **CellMLImport** el)
- void **deleteImport** (in unsigned long index)
- **CellMLImport** **removeImport** (in unsigned long index)

Public Attributes

- readonly attribute unsigned long **nImport**

5.20.1 Detailed Description

This represents a list of import elements.

5.20.2 Member Function Documentation

5.20.2.1 void cellml_dom::CellMLImportList::deleteImport (in unsigned long *index*)

Delete an element

Parameters:

index The index at which to delete.

5.20.2.2 CellMLImport cellml_dom::CellMLImportList::getImport (in unsigned long *index*)

Get an import

Parameters:

index The index of the import.

Returns:

The import element

5.20.2.3 void cellml_dom::CellMLImportList::insertImport (in unsigned long *index*, in CellMLImport *el*)

Insert an element

Parameters:

- index* The index which the inserted element will have.
el The element to insert

5.20.2.4 CellMLImport cellml_dom::CellMLImportList::removeImport (in unsigned long *index*)

Remove an element, and return it.

Parameters:

- index* The index at which to remove.

Returns:

- The removed element.

5.20.2.5 CellMLImport cellml_dom::CellMLImportList::setImport (in unsigned long *index*, in CellMLImport *el*)

Set an element

Parameters:

- index* The index at which to set
el The element to set to.

Returns:

- The previous value at that index

5.20.3 Member Data Documentation

5.20.3.1 readonly attribute unsigned long cellml_dom::CellMLImportList::nImport

The number of import elements.

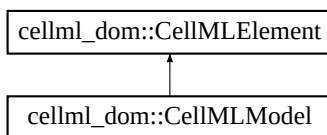
The documentation for this interface was generated from the following file:

- CellML-DOM.idl

5.21 cellml_dom::CellMLModel Interface Reference

```
import "CellML-DOM.idl";
```

Inheritance diagram for cellml_dom::CellMLModel:



Public Attributes

- attribute dom::DOMString **name**
- readonly attribute **CellMLImportList imports**
- readonly attribute **CellMLUnitList units**
- readonly attribute **CellMLGroupList groups**
- readonly attribute **CellMLConnectionList connections**
- readonly attribute **CellMLComponentList allComponents**
- readonly attribute **CellMLComponentList toplevelComponents**

5.21.1 Detailed Description

This represents a CellML <model> element

5.21.2 Member Data Documentation

5.21.2.1 readonly attribute CellMLComponentList cellml_dom::CellMLModel::allComponents

The list of components.

5.21.2.2 readonly attribute CellMLConnectionList cellml_dom::CellMLModel::connections

The list of connections.

5.21.2.3 readonly attribute CellMLGroupList cellml_dom::CellMLModel::groups

The list of toplevel group elements.

5.21.2.4 readonly attribute CellMLImportList cellml_dom::CellMLModel::imports

The list of toplevel imports.

5.21.2.5 attribute dom::DOMString cellml_dom::CellMLModel::name

The name that identifies this model.

5.21.2.6 readonly attribute CellMLComponentList cellml_dom::CellMLModel::toplevelComponents

A list of all components which are not in the encapsulated set for any other components. Appending to this automatically appends to allComponents.

5.21.2.7 readonly attribute CellMLUnitList cellml_dom::CellMLModel::units

The list of units.

The documentation for this interface was generated from the following file:

- CellML-DOM.idl

5.22 cellml_dom::CellMLModelLoader Interface Reference

```
import "CellML-DOM.idl";
```

Public Member Functions

- void **requestModel** (in **CellMLDocumentPromise** *promise*, in dom::DOMString *href*)

5.22.1 Detailed Description

This is implemented by applications using this API. It provides a way for the API to update the list of models which must be loaded before a **CellMLDocumentPromise**(p. 24) can give a flattened **CellMLDocument**(p. 23).

5.22.2 Member Function Documentation

5.22.2.1 void cellml_dom::CellMLModelLoader::requestModel (in **CellMLDocumentPromise** *promise*, in dom::DOMString *href*)

Requests that a certain URL be loaded and the resulting model passed to the promise.

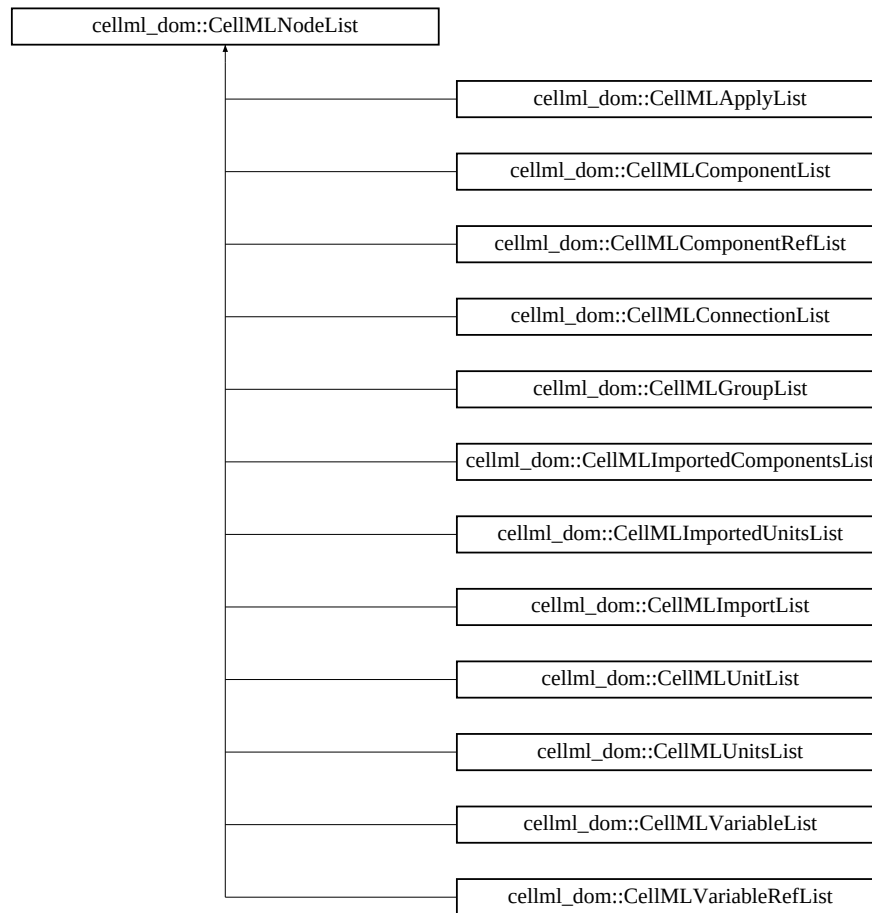
The documentation for this interface was generated from the following file:

- CellML-DOM.idl

5.23 cellml_dom::CellMLNodeList Interface Reference

```
import "CellML-DOM.idl";
```

Inheritance diagram for cellml_dom::CellMLNodeList::



5.23.1 Detailed Description

This represents a list of CellML nodes.

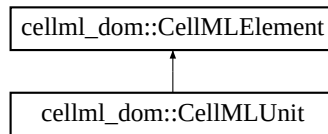
The documentation for this interface was generated from the following file:

- CellML-DOM.idl

5.24 cellml_dom::CellMLUnit Interface Reference

```
import "CellML-DOM.idl";
```

Inheritance diagram for cellml_dom::CellMLUnit::



Public Attributes

- attribute dom::DOMString **unit**
- attribute double **multiplier**
- attribute double **offset**
- attribute long **prefixExponent**
- attribute long **exponent**

5.24.1 Detailed Description

This represents a <unit> element.

5.24.2 Member Data Documentation

5.24.2.1 attribute long cellml_dom::CellMLUnit::exponent

The exponent on this unit.

5.24.2.2 attribute double cellml_dom::CellMLUnit::multiplier

The multiplier value.

5.24.2.3 attribute double cellml_dom::CellMLUnit::offset

The fixed offset.

5.24.2.4 attribute long cellml_dom::CellMLUnit::prefixExponent

The exponent of the prefix($10^{\text{prefixExponent}}$) for this unit. This will automatically convert to/from SI prefix names when setting or changing the attribute node, if applicable.

5.24.2.5 attribute dom::DOMString cellml_dom::CellMLUnit::unit

The name of the unit.

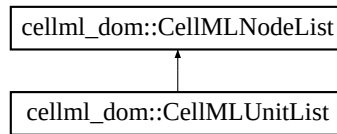
The documentation for this interface was generated from the following file:

- CellML-DOM.idl

5.25 cellml_dom::CellMLUnitList Interface Reference

```
import "CellML-DOM.idl";
```

Inheritance diagram for cellml_dom::CellMLUnitList::



Public Member Functions

- **CellMLUnit** **getUnit** (in unsigned long index)
- void **insertUnit** (in unsigned long index, in **CellMLUnit** el)
- **CellMLUnit** **setUnit** (in unsigned long index, in **CellMLUnit** el)
- void **deleteUnit** (in unsigned long index)
- **CellMLUnit** **removeUnit** (in unsigned long index)

Public Attributes

- readonly attribute unsigned long **nUnits**

5.25.1 Detailed Description

This represents a list of <unit> elements.

5.25.2 Member Function Documentation

5.25.2.1 void cellml_dom::CellMLUnitList::deleteUnit (in unsigned long *index*)

Delete an element

Parameters:

index The index at which to delete.

5.25.2.2 CellMLUnit cellml_dom::CellMLUnitList::getUnit (in unsigned long *index*)

Get a unit element

Parameters:

index The index of the units element

Returns:

The unit element

5.25.2.3 void cellml_dom::CellMLUnitList::insertUnit (in unsigned long *index*, in CellMLUnit *el*)

Insert an element

Parameters:

- index* The index which the inserted element will have.
el The element to insert

5.25.2.4 CellMLUnit cellml_dom::CellMLUnitList::removeUnit (in unsigned long *index*)

Remove an element, and return it.

Parameters:

- index* The index at which to remove.

Returns:

- The removed element.

5.25.2.5 CellMLUnit cellml_dom::CellMLUnitList::setUnit (in unsigned long *index*, in CellMLUnit *el*)

Set an element

Parameters:

- index* The index at which to set.
el The element to set to.

Returns:

- The previous value at that index

5.25.3 Member Data Documentation

5.25.3.1 readonly attribute unsigned long cellml_dom::CellMLUnitList::nUnits

The number of unit elements.

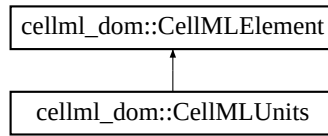
The documentation for this interface was generated from the following file:

- CellML-DOM.idl

5.26 cellml_dom::CellMLUnits Interface Reference

```
import "CellML-DOM.idl";
```

Inheritance diagram for cellml_dom::CellMLUnits::



Public Attributes

- attribute dom::DOMString **name**
- attribute boolean **baseUnits**
- readonly attribute CellMLUnitList **unitList**

5.26.1 Detailed Description

This represents a <units> element inside a model or component.

5.26.2 Member Data Documentation

5.26.2.1 attribute boolean cellml_dom::CellMLUnits::baseUnits

True if this is a base unit, false otherwise.

5.26.2.2 attribute dom::DOMString cellml_dom::CellMLUnits::name

The name of the units.

5.26.2.3 readonly attribute CellMLUnitList cellml_dom::CellMLUnits::unitList

The list of all unit elements.

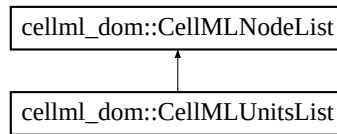
The documentation for this interface was generated from the following file:

- CellML-DOM.idl

5.27 cellml_dom::CellMLUnitsList Interface Reference

```
import "CellML-DOM.idl";
```

Inheritance diagram for cellml_dom::CellMLUnitsList::



Public Member Functions

- **CellMLUnits** **getUnits** (in unsigned long index)
- void **insertUnits** (in unsigned long index, in **CellMLUnits** el)
- **CellMLUnits** **setUnits** (in unsigned long index, in **CellMLUnits** el)
- void **deleteUnits** (in unsigned long index)
- **CellMLUnits** **removeComponent** (in unsigned long index)

Public Attributes

- readonly attribute unsigned long **nUnits**

5.27.1 Detailed Description

This represents a list of <units> elements inside <model>

5.27.2 Member Function Documentation

5.27.2.1 void cellml_dom::CellMLUnitsList::deleteUnits (in unsigned long *index*)

Delete an element

Parameters:

index The index at which to delete.

5.27.2.2 CellMLUnits cellml_dom::CellMLUnitsList::getUnits (in unsigned long *index*)

Get a units element

Parameters:

index The index of the units element

Returns:

The units element

5.27.2.3 void cellml_dom::CellMLUnitsList::insertUnits (in unsigned long *index*, in CellMLUnits *el*)

Insert an element

Parameters:

- index* The index which the inserted element will have.
el The element to insert

5.27.2.4 CellMLUnits cellml_dom::CellMLUnitsList::removeComponent (in unsigned long *index*)

Remove an element, and return it.

Parameters:

- index* The index at which to remove.

Returns:

- The removed element.

5.27.2.5 CellMLUnits cellml_dom::CellMLUnitsList::setUnits (in unsigned long *index*, in CellMLUnits *el*)

Set an element

Parameters:

- index* The index at which to set.
el The element to set to.

Returns:

- The previous value at that index

5.27.3 Member Data Documentation**5.27.3.1** readonly attribute unsigned long cellml_dom::CellMLUnitsList::nUnits

The number of units elements.

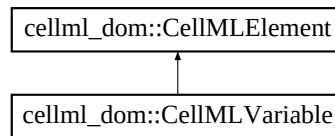
The documentation for this interface was generated from the following file:

- CellML-DOM.idl

5.28 cellml_dom::CellMLVariable Interface Reference

```
import "CellML-DOM.idl";
```

Inheritance diagram for cellml_dom::CellMLVariable::



Public Attributes

- const unsigned short **INTERFACE_IN** = 0
- const unsigned short **INTERFACE_OUT** = 1
- const unsigned short **INTERFACE_NONE** = 2
- attribute dom::DOMString **name**
- attribute unsigned short **publicInterface**
- attribute unsigned short **privateInterface**
- attribute dom::DOMString **unitsName**
- attribute **CellMLUnits** **units**
- attribute double **initialValue**
- attribute **CellMLVariable** **initialValueVariable**
- readonly attribute **CellMLVariable** **resolvedVariable**

5.28.1 Detailed Description

This represents a <variable> element.

5.28.2 Member Data Documentation

5.28.2.1 attribute double cellml_dom::CellMLVariable::initialValue

The value represented by the initial_value attribute, or if this is the name of another variable, the initial_value extracted from that variable.

5.28.2.2 attribute CellMLVariable cellml_dom::CellMLVariable::initialValueVariable

The variable named in the initial_value variable, or null if no variable is named in initial_value. If this is set to null, then initial_value should be set to a string representation of the initialValue attribute above.

5.28.2.3 const unsigned short cellml_dom::CellMLVariable::INTERFACE_IN = 0

INTERFACE_IN corresponds to the string in in the attributes public_interface or private_interface

5.28.2.4 `const unsigned short cellml_dom::CellMLVariable::INTERFACE_NONE = 2`

INTERFACE_OUT corresponds to the string none in the attributes public_interface or private_interface(or alternatively the absense of any such attribute).

5.28.2.5 `const unsigned short cellml_dom::CellMLVariable::INTERFACE_OUT = 1`

INTERFACE_OUT corresponds to the string out in the attributes public_interface or private_interface

5.28.2.6 `attribute dom::DOMString cellml_dom::CellMLVariable::name`

The name of this variable(name attribute)

5.28.2.7 `attribute unsigned short cellml_dom::CellMLVariable::privateInterface`

The private_interface attribute. This must be one of INTERFACE_IN, INTERFACE_OUT, INTERFACE_NONE

5.28.2.8 `attribute unsigned short cellml_dom::CellMLVariable::publicInterface`

The public_interface attribute. This must be one of INTERFACE_IN, INTERFACE_OUT, INTERFACE_NONE

5.28.2.9 `readonly attribute CellMLVariable cellml_dom::CellMLVariable::resolved-Variable`

This recursively "resolves" a variable as follows...

- A variable which has neither publicInterface nor privateInterface set to INTERFACE_IN resolves to itself.
- A variable which has both public and private interface set to INTERFACE_IN resolves to null(this has no meaning).
- A variable with only one interface set to INTERFACE_IN will resolve to whatever the variable it is connected to resolves to.

5.28.2.10 `attribute CellMLUnits cellml_dom::CellMLVariable::units`

Getting this will find the units(null if it is imported and this is not a flattened document, or the units couldn't be found). Setting this will also set unitsName. It is also legal to set these to a units from another document, in which case the import elements will automatically be managed using `CellMLDocument::sourceURL`(p. 23)

5.28.2.11 attribute dom::DOMString cellml_dom::CellMLVariable::unitsName

The name of the units for this variable.

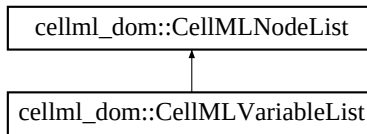
The documentation for this interface was generated from the following file:

- CellML-DOM.idl

5.29 cellml_dom::CellMLVariableList Interface Reference

```
import "CellML-DOM.idl";
```

Inheritance diagram for cellml_dom::CellMLVariableList::



Public Member Functions

- **CellMLVariable** **getVariable** (in unsigned long index)
- void **insertVariable** (in unsigned long index, in **CellMLVariable** el)
- **CellMLVariable** **setVariable** (in unsigned long index, in **CellMLVariable** el)
- void **deleteVariable** (in unsigned long index)
- **CellMLVariable** **removeVariable** (in unsigned long index)

Public Attributes

- readonly attribute unsigned long **nVariables**

5.29.1 Detailed Description

This represents a list of <variable> elements inside <model>

5.29.2 Member Function Documentation

5.29.2.1 void cellml_dom::CellMLVariableList::deleteVariable (in unsigned long *index*)

Delete an element

Parameters:

index The index at which to delete.

5.29.2.2 CellMLVariable cellml_dom::CellMLVariableList::getVariable (in unsigned long *index*)

Get a variable element

Parameters:

index The index of the variable element

Returns:

The variable element

5.29.2.3 void cellml_dom::CellMLVariableList::insertVariable (in unsigned long *index*, in CellMLVariable *el*)

Insert an element

Parameters:

- index* The index which the inserted element will have.
el The element to insert

5.29.2.4 CellMLVariable cellml_dom::CellMLVariableList::removeVariable (in unsigned long *index*)

Remove an element, and return it.

Parameters:

- index* The index at which to remove.

Returns:

- The removed element.

5.29.2.5 CellMLVariable cellml_dom::CellMLVariableList::setVariable (in unsigned long *index*, in CellMLVariable *el*)

Set an element

Parameters:

- index* The index at which to set.
el The element to set to.

Returns:

- The previous value at that index

5.29.3 Member Data Documentation

5.29.3.1 readonly attribute unsigned long cellml_dom::CellMLVariableList::n-Variables

The number of variable elements.

The documentation for this interface was generated from the following file:

- CellML-DOM.idl

5.30 cellml_dom::CellMLVariableRef Interface Reference

```
import "CellML-DOM.idl";
```

Public Attributes

- attribute dom::DOMString **variableOneName**
- attribute dom::DOMString **variableTwoName**
- attribute **CellMLVariable** **variableOne**
- attribute **CellMLVariable** **variableTwo**

5.30.1 Detailed Description

This represents a <variable_ref> element.

5.30.2 Member Data Documentation

5.30.2.1 attribute **CellMLVariable** cellml_dom::CellMLVariableRef::variableOne

Getting these will find the variable(null if it is in an import and this is not from a flattened document). Setting these will also set variable*Name. It is also legal to set these to a variable from another document, in which case the import elements will automatically be managed using **CellMLDocument::sourceURL**(p. 23)

5.30.2.2 attribute dom::DOMString cellml_dom::CellMLVariableRef::variableOne-Name

The names of the two variables according to the attributes variable_one and variable_two

5.30.2.3 attribute **CellMLVariable** cellml_dom::CellMLVariableRef::variableTwo

Getting these will find the variable(null if it is in an import and this is not from a flattened document). Setting these will also set variable*Name. It is also legal to set these to a variable from another document, in which case the import elements will automatically be managed using **CellMLDocument::sourceURL**(p. 23)

5.30.2.4 attribute dom::DOMString cellml_dom::CellMLVariableRef::variableTwo-Name

The names of the two variables according to the attributes variable_one and variable_two

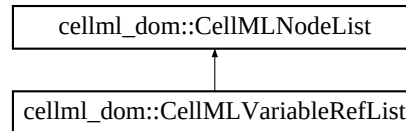
The documentation for this interface was generated from the following file:

- CellML-DOM.idl

5.31 cellml_dom::CellMLVariableRefList Interface Reference

```
import "CellML-DOM.idl";
```

Inheritance diagram for cellml_dom::CellMLVariableRefList::



Public Member Functions

- **CellMLVariableRef** **getVariableRef** (in unsigned long *index*)
- void **insertVariableRef** (in unsigned long *index*, in **CellMLVariableRef** *el*)
- **CellMLVariableRef** **setGroup** (in unsigned long *index*, in **CellMLVariableRef** *el*)
- void **deleteVariableRef** (in unsigned long *index*)
- **CellMLVariableRef** **removeVariableRef** (in unsigned long *index*)

Public Attributes

- readonly attribute unsigned long **nVariableRefs**

5.31.1 Detailed Description

This represents a list of <variable_ref> elements.

5.31.2 Member Function Documentation

5.31.2.1 void cellml_dom::CellMLVariableRefList::deleteVariableRef (in unsigned long *index*)

Delete an element

Parameters:

index The index at which to delete.

5.31.2.2 CellMLVariableRef cellml_dom::CellMLVariableRefList::getVariableRef (in unsigned long *index*)

Get a variable_ref element

Parameters:

index The index of the variable_ref element

Returns:

The variable_ref element

5.31.2.3 void cellml_dom::CellMLVariableRefList::insertVariableRef (in unsigned long *index*, in CellMLVariableRef *el*)

Insert an element

Parameters:

- index* The index which the inserted element will have.
- el* The element to insert

5.31.2.4 CellMLVariableRef cellml_dom::CellMLVariableRefList::removeVariableRef (in unsigned long *index*)

Remove an element, and return it.

Parameters:

- index* The index at which to remove.

Returns:

- The removed element.

5.31.2.5 CellMLVariableRef cellml_dom::CellMLVariableRefList::setGroup (in unsigned long *index*, in CellMLVariableRef *el*)

Set an element

Parameters:

- index* The index at which to set.
- el* The element to set to.

Returns:

- The previous value at that index

5.31.3 Member Data Documentation

5.31.3.1 readonly attribute unsigned long cellml_dom::CellMLVariableRefList::n-VariableRefs

The number of variable_ref elements.

The documentation for this interface was generated from the following file:

- CellML-DOM.idl

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- cellml_dom::CellMLApplyList
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